REMARKS

Applicants respectfully request entry of the foregoing amendments, and reconsideration of the application in view of the amendments above and the remarks that follow. Claims 1-36 remain pending in the application.

In numbered paragraph 2-3, claims 1-36 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Applicants respectfully traverse this rejection for the reasons set forth below. Regarding the rejection of claim 28, Applicants believe that the foregoing amendment overcomes the rejection of this claim.

The Examiner has objected to the language regarding a controller for determining a pointing vector from coordinate information and the step of determining a pointing vector from coordinate information, stating that it "fails to clearly identify what the 'coordinate information' is and how it is derived or obtained." (Office Action at page 2.) However, Applicants respectfully submit that it is well settled that "[o]ne does not look to the claims to find out *how* to practice the invention they define, but to the specification." 194 U.S.P.Q. 187, 195 n.5 (C.C.P.A. 1977), (emphasis added) citing *in re Roberts* 176 U.S.P.Q. 313, 315 (C.C.P.A. 1973) and *in re Fuetterer*, 138 U.S.P.Q. 217 (1963).

In the present case, Applicants respectfully submit that the language regarding a controller for determining a pointing vector is clearly supported within the specification. For example, Figure 4 illustrates a navigational controller 105, which is used for determining a pointing vector 309. This controller 105 is described, for example, beginning in the paragraph bridging pages 13-14 of the Specification. The controller comprises a receiver 401, and inertial measuring unit (IMU) 403, and a navigation

processor 405. The navigation processor 405 calculates the pointing vector, based on absolute position information received from the GPS receiver 401, as well as information regarding changes in relative position of the apparatus received by the IMU 403. For example, as described on page 14 of the Specification, the GPS receiver 401 may transmit absolute position information "in the form of pseudo and delta range information 407, to the navigation processor 405." Additionally, the IMU 403 measures changes and provides relative position information, such as "changes in velocity and/or changes in angle of the apparatus," to the navigation processor 405. Based upon the absolute position information 407 and the relative position information 408, the navigation processor 405 is able to determine the location of a source transmitter (i.e., a GPS satellite), and create a pointing vector 309, indicating the direction of the source transmitter to allow the beam-forming algorithm processor 305 to create reception lobes in the direction of the pointing vector.

Accordingly, as one must look to the Specification to determine how to practice the invention defined by the claims, and as the Specification clearly teaches how the controller determines a pointing vector from coordinate information, Applicants respectfully submit that the claims are not indefinite under 35 U.S.C. § 112, second paragraph. Therefore, Applicants respectfully request the withdrawal of the rejection claims 1-36 under 35 U.S.C. § 112, second paragraph.

In numbered paragraph 5, beginning on page 2 of the Office Action, claims 1, 3, 4, 9-13, 16-18, 24, 25, 31 and 33-36 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. US 2001/0003443 A1 to Velazquez

et al ("*Velazquez*"). Applicants respectfully traverse this rejection for the reasons set forth

below.

At the outset, Applicants wish to note the Examiner's conclusory statements of each

prior art rejection. Under each ground of rejection, the Examiner has merely noted that the

claims are rejected over a certain reference, and has made no attempt to connect elements

of each prior art reference with each of the specific, individual claim features. The

allocation of the burdens requires that the U.S. Patent and Trademark Office produce the

factual basis for its rejection of an application under 35 U.S.C. §§ 102 and 103. In re

Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) (citing In re Warner,

379 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967)). The one who bears the initial

burden of presenting a *prima facie* case of unpatentability is the Examiner. In re Oetiker,

977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). In the present case,

Applicants respectfully submit that the Examiner has not met his burden of establishing a

prima facie case of unpatentability in view of the cited references, and therefore submit that

these rejections are deficient and should be withdrawn.

The present invention provides the ability to receive relatively weak radio frequency

(RF) signals, such as Global Positioning System (GPS) satellite signals, and the like. The

overall configuration of the present invention is illustrated in block diagram form in Figure

1, where it can be seen that the present invention advantageously provides an antenna array

101, beam-forming electronics 103, and a navigational controller 105. The antenna array

101 comprises a plurality of antenna elements for receiving an RF signal. The navigational

controller 105 determines a pointing vector 309 from coordinate information (as described

in detail above), and the beam-forming electronics 103 receive information from the navigational controller 105 to assist the antenna array in forming reception lobes. In accordance with embodiments of the present invention, the reception lobes may be advantageously directed to weak RF signals, such as GPS satellite signals. Thus, the invention provides the ability to effectively reject interference, which in the case of the such weak RF signals may be in the form of relatively weak jamming signals, by receiving and magnifying the desired, weak source signal. The present invention provides a rugged, portable unit that may be easily relocated to remote locations, wherever a user desires to use such a system.

Velazquez on the other hand, fails to disclose or suggest a receiver such as the apparatus set forth in claim 1, for example. Rather, *Velazquez* is directed to a communication system that uses geographic positioning data to locate cell phones and efficiently allocate frequency distribution among the cells of the cell phone network. In *Velazquez*, an array is provided on the base station, rather than on the receiver as is the case in the presently claimed invention. *Velazquez* teaches using a pointing vector to direct communication to a hand set, however, *Velazquez* does not teach a receiver that forms a pointing vector using a navigational controller in order to direct the beam-forming electronics to form reception lobes in the direction of the pointing vector. Additionally, *Velazquez*, while teaching some type of beam-forming electronics, fails to disclose forming reception lobes using constructive interference, as is the case in the presently claimed invention. Rather, *Velazquez* selects and uses a single element that points in the direction of the target handset.

Accordingly, for at least these reasons, Applicants respectfully request the withdrawal of the rejection of independent claim 1. Additionally, Applicants respectfully request the withdrawal of the rejection of claims 3, 4, 9-13, 16-18, 24, and 25, which depend therefrom and are patentable for at least the same reasons. In addition, Applicants respectfully submit that for similar reasons to those described above in connection with independent claim 1, independent claim 31 is patentable in view of *Velazquez*. Accordingly, Applicants respectfully request the withdrawal of the rejection of independent claim 31, and claims 33-36, which depend therefrom and are patentable for at least the same reasons.

Applicants note that the rejection under *Velazquez* was set forth in a single sentence without any explanation as to which elements of the reference were being interpreted as specific claim features. If the Examiner is to maintain the rejection under *Velazquez*, Applicants respectfully request that he particularly point to which elements of *Velazquez* are being interpreted as each of the specific, individual claim features.

In numbered paragraph 7, beginning on page 3 of the Office Action, claims 1, 3, 4, 9-13, 16-18, 24, 25, 31 and 33-36 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. US 2001/0034967 A1 to Taniguichi et al. ("*Taniguichi*"). Applicants respectfully traverse this rejections for the reasons set forth below.

Taniguichi also is directed to an improved cellular telephone system that senses the strength of signals transmitted to a base station to detect which element should be used for communication with the cell phone. There is no beam forming in *Taniguichi*, nor are there

any reception lobes formed by multiple elements. Additionally, *Taniguichi* does not disclose nor suggest the use of GPS systems.

Accordingly, Applicants respectfully request the withdrawal of the rejection of independent claims 1 and 31, and their respective dependent claims, which are patentable for at least the reasons discussed above.

Applicants note the brevity of the statement of the rejection, which is set forth in a mere two sentences in the Office Action. Applicants respectfully request, if the Examiner is to maintain the rejection under *Taniguichi*, that he specifically outline which elements of *Taniguichi* are being interpreted as each of the specific, individual claim elements.

In numbered paragraph 9, on page 3 of the Office Action, claims 1-6, 8-31, and 33-36 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,818,385 to Bartholomew ("*Bartholomew*"). Applicants respectfully traverse this rejection for the reasons set forth below.

Bartholomew discloses multiple elements that use an algorithm to look at signal combinations and measure power. For GPS signals the system is usually adjusted for the lowest-powered signals received. However, *Bartholomew* fails to disclose or suggest the use of reception lobes, formed in response to a pointing vector directed at a signal source, for magnifying a weak signal, such as a GPS signal. It is evident from the teachings of *Bartholomew*, that rather than amplifying a weak signal by constructive reception lobe formation, the system is merely adjusted for the lowest signal strength. Thus, the system of *Bartholomew*, unlike the present invention, would not work in a hostile environment where potential jamming and interfering signals are frequently experienced.

Accordingly, Applicants respectfully request the withdrawal of the rejection of independent claims 1 and 31, and their respective dependent claims, 2-6, 8-30, and 33-36, which are patentable for at least the reasons discussed above.

As with the prior rejections, Applicants note the terse, conclusory statement of the rejection over *Bartholomew*, and respectfully request, if the Examiner is to maintain this rejection, that he specifically indicate which elements *Bartholomew* are being construed as each of the specific, individual features of the claims.

In numbered paragraph 10 on page 3 of the Office Action, claims 1-36 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,023,242 to Dixon ("*Dixon*"). Applicants respectfully traverse this rejection for the reasons set forth below.

Dixon is directed to a system and method for establishing communication with a satellite. Specifically, it appears that *Dixon* is directed to the satellite system commonly known as INMARSAT, which is a single user satellite cell phone system. In *Dixon*, an algorithm makes use of latitude and longitude information *manually entered by a user*, and time information, to detect and track a single satellite. The system of *Dixon* makes use of a single, fixed-gain antenna to perform this tracking.

Unlike the present invention, *Dixon* does not disclose nor suggest the use of an array of antenna elements. Additionally, as the user must manually enter location information (i.e., latitude and longitude information), there is no need for a pointing vector, as set forth in the presently claimed invention. Moreover, as *Dixon* relates to a system that makes use of only a single fixed-gain antenna, there is no need for beam-

forming electronics to form reception lobes by controlling the phase of the antenna elements of an antenna array. Indeed, there is no antenna array in *Dixon* and thus such beam forming electronics would be useless to that system.

Accordingly, Applicants respectfully request the withdrawal of the rejection of independent claim 1 for at least these reasons, and independent claim 31, which is patentable for similar reasons. Additionally, Applicants respectfully request the withdrawal of the rejection of claims 2-30, which depend from claim 1 and claims 32-36, which depend from claim 31, which are patentable for at least the same reasons as their respective independent claims.

As with the prior rejections, Applicants note the terse, conclusory statement of the rejection, in which the Examiner has failed to point to any specific elements of *Dixon* being interpreted as the features of the presently claimed invention. Applicants respectfully request, if the Examiner is to maintain the rejection under *Dixon*, that he specifically point to elements of that reference being construed as each of the specific, individual claim features.

In numbered paragraph 12, on page 3 of the Office Action, claims 1-36 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,061,019 to Miyoshi ("*Miyoshi*"). Applicants respectfully traverse this rejection for the reasons set forth below.

Miyoshi is directed to a system that makes use of a mechanically aimed satellite dish, which uses a GPS clock in conjunction with radio frequency tracking. The system of *Miyoshi* uses the GPS signal to get accurate time information, and uses time in calculations

for tracking satellite locations. The system of *Miyoshi* makes use of satellite constellation information after the acquisition of time information, and mechanically aims the satellite dish to track a single satellite. The system of *Miyoshi* tracks only a single, fixed location, and is not dynamic like the receiver of the presently claimed invention. The system of *Miyoshi*, therefore, fails to disclose or suggest the use of an array of antenna elements, or beam-forming electronics, which form reception lobes. Rather, *Miyoshi* describes a system that uses mechanical aiming of a satellite, which suffers distinct disadvantages from the electronically controlled, dynamic system of the presently claimed invention.

Again, Applicants note the conclusory nature of the statement of the rejection under *Miyoshi* set forth in the Office Action. Applicants respectfully request, if the Examiner is to maintain the rejection under *Miyoshi*, that he specifically point to elements of that reference being construed as each of the specific, individual features of the claims.

Accordingly, Applicants respectfully request the withdrawal of the rejection of independent claim 1 and 31 for at least the reasons discussed above, and their respective dependent claims, 2-30 and 32-36, which are patentable for at least the same reasons as their respective independent claims.

All objections and rejections having been addressed, Applicants respectfully submit that a Notice of Allowance is next in order and earnestly solicits such. Should the

Examiner have any comments and/or questions regarding this communication, or the

application in general, he is invited to telephone the undersigned at 703 838 6687.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: _____
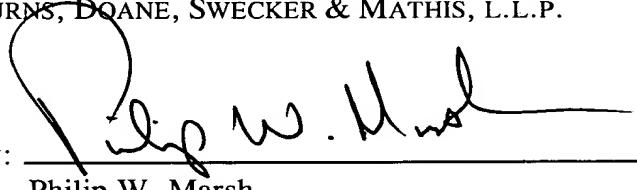
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Date: December 4, 2002

Attachment to Amendment dated December 4, 2002

Mark-up of Claim 28

28.   (Amended) The apparatus of claim 16, wherein the [satellite] pointing vector

is updated using a pre-determined refresh rate.